

Application No.: 10/696,588
Amendment Under 37 C.F.R. §1.111 dated May 16, 2005
Reply to the Office Action dated February 22, 2005

REMARKS

Claims 1-21 are pending in the above-identified application. Claim 1 and 17 are amended to clarify the claimed subject matter, without narrowing the scope of the claim. Claim 21 is added. This claim is supported by the specification and distinguishes over the cited documents for the reasons stated below. No claim is cancelled.

In view of the claim amendments and the following remarks, Applicant respectfully submits that this application is now in condition for allowance.

A. Objection to Claim 1

On page 2 of the Office Action, the Examiner objected to claim 1 on the basis of informalities. Claim 1 is amended to overcome the objection. As such, withdrawal of this objection is respectfully submitted.

B. Rejection of Claims 1-2, 5-6, 9-10, 13-14, and 17-20 under 35 U.S.C. §102(e) as being anticipated by *Watanabe et al.*

The Examiner rejected claims 1-2, 5-6, 9-10, 13-14, and 17-20 under 35 U.S.C. §102(e) as being anticipated by *Watanabe et al.* (U.S. Patent No. 6,787,907). In view of the following remarks, Applicant respectfully submits that claims 1-2, 5-6, 9-10, 13-14, and 17-20, as amended, recite subject matter that is neither disclosed nor suggested by *Watanabe et al.*

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Contrary to the Examiner's statement that all elements of claim 1 are disclosed in the *Watanabe et al.* reference, "etching the second interlayer insulating film again by using the hard mask as a mask" is not, so the rejection is unsupported by the art and should be withdrawn.

Watanabe et al. only discloses that "after the wiring trench is formed through etching, ashing is performed to remove the resist pattern PR2 and organic protective filler 55". (See, e.g., col. 9, lines 26-28 and col. 10, lines 17-26 in *Watanabe*.)

Whereas, forming a wiring trench according to claims 1, 17 and 21 comprises etching, removing and etching again. (See, e.g., "etching the hard mask and the second interlayer insulating film, using a resist mask in which an opening for exposing the embedded material is formed; removing the resist mask and the embedded material; etching the second interlayer insulating film again by using the hard mask as a mask" as recited in claims 1, 17 and 21.)

For at least this reason, Applicant submits that claims 1, 17 and 21 are allowable over the cited prior art. As claims 2-16 and 18-20 depend from claims 1 or 17, they should likewise be allowable by nature of their dependency.

C. Rejection of Claims 3-4, 7-8, 11-12, and 15-16 under 35 U.S.C. §103(a) as being unpatentable over *Watanabe et al.*, as applied above, in view of Applicants' admitted prior art.

The Examiner rejected claims 3-4, 7-8, 11-12, and 15-16 under 35 U.S.C. §103(a) as being unpatentable over *Watanabe et al.* in view of Applicants' admitted prior art. The Examiner's §103(a) rejections are moot. As discussed above claim 1 distinguishes over the

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Watanabe et al. reference. The secondary reference fails to provide the teachings which *Watanabe et al.* lacks.

For example, *Watanabe et al.* and Applicants' admitted prior art fail to teach or suggest a method of forming a wiring trench at least comprising the steps of etching, removing and etching again.

As claims 3-4, 7-8, 11-12, and 15-16 depend from claim 1, they should likewise be allowable by nature of their dependency.

D. Rejection of Claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over Applicants' admitted prior art in view of Li et al.

The Examiner rejected claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over Applicants' admitted prior art in view of *Li et al.* (U.S. Patent No. 6,794,293). Applicant respectfully submits that claims 1-20, as amended, recite subject matter that is neither disclosed nor suggested by Applicants' admitted prior art in view of Li.

With regard to claims 1 and 17, the Examiner admitted that Applicants' admitted prior art did not disclose etching the second interlayer insulating film again by using the hard mask as a mask. The Examiner asserts that *Li et al.* discloses the missing limitations. (See, e.g., Office Action at page 5.)

However, *Li et al.* fails to teach or suggest the limitation of "etching the second interlayer insulating film again by using the hard mask as a mask" as claimed in the above-identified application. For example, *Li et al.* discloses that "after the first gas mixture is applied during the

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trench etch process, a second gas mixture is applied”. (See, e.g., col. 8, lines 26-29 and Fig. 7E) *Li et al.* further discloses that “the non-polymerized gas mixture etches the fence, a portion of the dielectric material, the organic plug and the photoresist”. (See, e.g., col. 8, lines 29-31 and Fig. 7E)

Whereas, forming a wiring trench according to claims 1, 17 and 21 comprises etching, removing and etching again. (See, e.g., “etching the hard mask and the second interlayer insulating film, using a resist mask in which an opening for exposing the embedded material is formed; removing the resist mask and the embedded material; etching the second interlayer insulating film again by using the hard mask as a mask” as recited in claims 1, 17 and 21.)

For at least this reason, Applicant submits that claim 1 is allowable over the cited prior art. As claims 2-16 and 18-20 depend from claim 1 or 17, they should likewise be allowable by nature of their dependency.

Accordingly, the present application is now in condition for allowance and an early Notice of Allowance is respectfully requested.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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A handwritten signature in cursive script, appearing to read "Darrin A. Auito".

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